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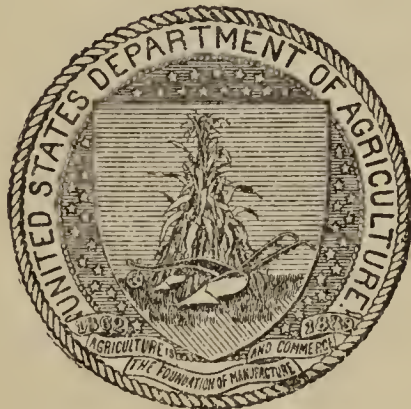
## INSTRUCTIONS

CONCERNING THE

# PREPARATION AND APPLICATION OF DIPS

AND

# REPORTING INSPECTIONS AND DIPPINGS OF SHEEP AND CATTLE FOR SCABIES.



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U. S. DEPARTMENT OF AGRICULTURE,  
BUREAU OF ANIMAL INDUSTRY,  
*Washington, D. C., April 27, 1907.*

TO BUREAU EMPLOYEES:

The following instructions concerning the preparation and application of the approved dips, and the reporting of inspections and dippings of sheep and cattle for scabies will supersede all former instructions covering these subjects. Bureau employees are urged to familiarize themselves with these instructions and will be governed thereby.

A. D. MELVIN,  
*Chief of Bureau.*

# INSTRUCTIONS CONCERNING THE PREPARATION AND APPLICATION OF DIPS AND REPORTING INSPECTIONS AND DIPPINGS OF SHEEP AND CATTLE FOR SCABIES.

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## DIRECTIONS FOR THE PREPARATION OF DIPS.

### LIME-AND-SULPHUR DIP.

#### FOR SHEEP SCAB.

1. The lime-and-sulphur dip is made in the proportion of 8 pounds of unslaked lime, 24 pounds of the flowers of sulphur, and 100 gallons of water.

*Directions for preparing 100 gallons of dip.*—Weigh out the lime, 8 pounds, and sulphur, 24 pounds. Place the unslaked lime in a shallow, water-tight box similar to a mortar box, or some suitable vessel, and add enough water to slake the lime and form a lime paste or lime putty. Sift into this lime paste the flowers of sulphur and stir well; then place the lime-and-sulphur paste in a kettle, boiler, or tank containing 30 gallons of water, the water first being heated nearly to the boiling point. Boil the mixture for two hours at least, stirring frequently; add water occasionally to maintain the original quantity. Allow the mixture to settle in the tank or draw the entire contents of the kettle or boiling tank into a large tub or barrel placed near the dipping vat and provided with a bunghole about 4 inches from the bottom, and then allow ample time to settle—from two to three hours or more if necessary. When fully settled, draw off the clear liquid into the dipping vat, taking care not to allow any of the sediment to accompany it, as the sediment will injure the wool. The clear liquid thus obtained only requires

the addition of sufficient clear warm water to bring the total up to 100 gallons. Flowers of sulphur must be used, and the lime must be of good quality.

#### FOR CATTLE SCAB.

2. The directions for preparing 100 gallons of lime-and-sulphur dip for dipping cattle for scabies are the same as those detailed above, except that 12 pounds of unslaked lime should be used.

#### TOBACCO-AND-SULPHUR DIP.

##### FOR SHEEP SCAB OR CATTLE SCAB.

3. The tobacco-and-sulphur dip is made with sufficient extract of tobacco, or nicotine solution, to give a mixture containing not less than five one-hundredths of 1 per cent nicotine, and 2 per cent flowers of sulphur. Sufficient nicotine would therefore be furnished for 96 gallons (about 800 pounds) of dip by 1 pound of a 40 per cent solution of nicotine. The formula for this dip would be: Nicotine, four-tenths of a pound; flowers of sulphur, 16 pounds; water, 96 gallons.

To calculate how much nicotine solution or extract of tobacco should be used for 96 gallons of water, divide the quantity of nicotine required in the dip by the proportion of nicotine in the extract. For example, suppose the nicotine solution contains 25 per cent nicotine, we have  $0.40 \div 0.25 = 1.6$ . Therefore in this case it would require 1.6 pounds of nicotine solution for the 96 gallons of dip. Or, if a tobacco extract is used, having for example 2.4 per cent of nicotine, the formula would be as follows:  $0.40 \div 0.024 = 16.66$ , and therefore 16.66 pounds would be required for 96 gallons of dip. Do not use any preparation the strength of which is not given on the outside of the package.

In preparing these dips the tobacco solution and sulphur should be mixed together with water before adding them to the water in the dipping vat. The dip should on no account be heated above 110° F. after the nicotine solution is added, as heat is liable to evaporate the nicotine and weaken the dip.



## BEAUMONT OIL EMULSION.

### FOR CATTLE AFFECTED WITH SCABIES.

4. *Directions for making 100 gallons.*—Dissolve with the aid of heat 5 pounds of hard soap (ordinary laundry soaps are satisfactory) in 5 gallons of soft water; to this solution add 20 gallons of Beaumont crude petroleum or a similar oil which may or may not contain sulphur, mixing with a spray pump, or otherwise, in a thorough manner. To this concentrated emulsion add sufficient soft water to bring the total up to 100 gallons, keeping the whole mass thoroughly agitated.

When properly prepared the concentrated emulsion will stand indefinitely without any tendency toward a separation of the oil and water, and can be diluted in any proportion with cold soft water.

### FOR CATTLE EXPOSED TO SCABIES.

5. *Directions for making 100 gallons.*—Same as above, except use  $2\frac{1}{2}$  pounds of hard soap,  $2\frac{1}{2}$  gallons of soft water, and 10 gallons of Beaumont crude petroleum, or similar oil, for making the concentrated emulsion.

## CRESOL AND COAL-TAR CREOSOTE DIPS.

### FOR SHEEP SCAB.

6. Inasmuch as all of the materials required for preparing these dips according to the regulations are not readily obtainable, and as their proper preparation requires a considerable degree of experience, the Department does not advise stock raisers to prepare them from the original materials, but considers that if either of these dips is to be used better results may be obtained by purchasing some approved ready-made proprietary article.

## DIRECTIONS FOR DIPPING SHEEP.

### DEPTH OF DIP IN VAT.

7. The average amount of dip used in a dipping vat is from 38 to 42 inches in depth, and the amount of dip necessary to obtain that depth should be ascertained before preparing the dip in order that the requisite amount of dip will be prepared.

## TIME, TEMPERATURE, ETC.

8. The sheep must be kept in the dip between two and three minutes, and their heads must be submerged at least once, though but for an instant at a time, and assistance must be rendered immediately if they appear to be strangling. The best time to duck the head is just before they go up the incline to leave the vat. The dip must be maintained at a temperature between 100° and 105° F. while the sheep are in it. It must be changed as soon as it becomes filthy, regardless of the number of sheep dipped in it, and in no case shall it be used when more than ten days old. In emptying the vat the entire contents must be removed, including all sediment and droppings or other foreign matter.

## USE OF DIPPING FORKS.

9. Men with dipping forks must be stationed along the vat to prevent the sheep from swimming through too soon, and to push each sheep under the dip except head, as they pass them. If they are swimming through the vat too quickly, the men can hold them back with dipping forks. They should be held in bunches of three to five, each man holding a bunch the necessary length of time, then passing them to the next man, pushing them well under the dip, except head, as they swim past. Place the dipping fork over the front part of the shoulders, and gently but firmly push the sheep under the dip except head. If properly done the sheep will raise its head, so the neck can be well soaked without danger of strangling by pushing the head under.

## SORTING AND HAND DRESSING.

10. All sheep that have hard, dry scab on them should be sorted out from the flock, and the scabby spots hand dressed with some of the dip, by rubbing with a smooth stick or a brush, so as to moisten and soften the scab, but not severely enough to draw blood, as the blood will protect the mites from the effect of the dip. Allow these sheep to stand from thirty to sixty minutes after hand dressing before putting them in the dipping vat.



## NUMBER OF DIPPINGS REQUIRED.

11. If the band of sheep is affected with scab a second dipping must be given at an interval of ten to fourteen days from the first one, to kill the mites hatched from eggs not killed by the first dipping. If the band of sheep is not affected, but has only been exposed to the disease, one dipping should be sufficient.

## DROWNING SHEEP.

12. When sheep start to drown or become strangled in the dipping vat, it is often necessary to pull them out immediately to save them. Such sheep, providing they have not remained in the vat the required length of time, should be returned to the pens and again dipped when they have recovered sufficient strength.

## DIFFERENCE BETWEEN DIPPING SHEEP AND LAMBS.

13. As a rule the dip will penetrate the fleece of a lamb quicker than that of a full-grown sheep in full fleece. For this reason they should not be put into the dipping vat together, the grown sheep requiring the most time on account of the gum in the fleece.

## DIRECTIONS FOR DIPPING CATTLE.

### DEPTH OF DIP IN VAT.

14. Care should be taken to maintain a depth of dip that will swim the tallest animals in the lot to be dipped.

### IMMERSION.

15. When either the lime-and-sulphur or the tobacco-and-sulphur dip is used, the cattle should be completely submerged twice; when Beaumont oil or an oil emulsion is used, they should be completely submerged once.

### AFFECTED ANIMALS.

16. Affected animals should receive special attention in the matter of treatment of the upper portions of their bodies, where the disease is likely to appear. This may be done by applying the dip to the neck, withers, and backs from a hose or bucket, and by scrubbing those parts of the animals as they pass through the vat.

## TEMPERATURE, ETC.

17. The same directions regarding temperature of the dip, changing the dip, age of the dip, and emptying the vat, that are given for dipping sheep, should be followed in dipping cattle, except that when oil or an oil emulsion is used it should not be heated at all; likewise the number of dippings required, except that when oil or an oil emulsion is used one dipping or treatment only is necessary in any case.

## WATERING THE ANIMALS.

18. In order that animals may not, on account of extreme thirst, drink of the dip, they should within six hours before dipping be given an opportunity to drink all the water they want, and the dripping platforms should be covered with slats, or be so grooved or otherwise prepared that the dip may drain away and not collect in pools from which the animals may drink. This is especially urged where an oil or oil emulsion is to be used.

## GENERAL DIRECTIONS.

## WATER.

19. Soft water is better than hard water for dipping, but if it can not be obtained the hard water may be "softened" by adding potash or lye, but no more should be added than is required to "cut" the water. •

## COMPUTING AMOUNT OF DIP REQUIRED.

20. In one gallon there are 231 cubic inches; multiply, in inches, the average length by the average breadth, the product by the depth, divide by 231, and the result will be the number of gallons. To obtain the average length of the vat, add the length at the bottom to the length at the top of the dip and divide by 2; obtain the average width in the same manner. The depth should be taken at the center of the vat, and should be from the bottom to water (or dip) line. Be sure to measure only the space filled by the dip and not above that line. The cooking vat should also be measured. It is convenient to have rods marked showing the number of gallons at various lengths.

## MIXING.

21. Mix the dip thoroughly in the dipping vat by stirring lengthwise in the vat, also from top to bottom. A large hoe is a good instrument to use in stirring.

## TEMPERATURE.

22. After the dip is thoroughly mixed, take the temperature at different parts of the vat; see that it is uniform, and if too hot or too cold add hot or cold water with proper proportion of dip until the right temperature is obtained; be careful to have all well mixed. The required temperature for dip is between 100° and 105° F., and it should be maintained at that temperature as nearly as possible, and never over 110° F. To ascertain the temperature, take some of the dip out of the vat in a bucket, hold the thermometer in it, and read the temperature while the thermometer is in the fluid.

## VAT.

23. Do not have any crosspieces or obstacles on the dipping vat where animals will strike them and be bruised as they go into the vat. Do not try to use too shallow a swim, as good work can not be done.

## GOOD ADVICE.

24. Remember that it is just as important to do thorough work with the last animals dipped as with the first ones.

The two essential things are *a reliable dip properly prepared of proper strength* and the *thorough soaking of the entire fleece or all of the hair with the dip*.

Select good weather for dipping, particularly avoiding wet weather.

Do not dip or spray with oil in freezing weather.

Do not dip too late in the afternoon, when the nights are chilly.

Do not hold animals off feed and water longer than can be avoided.

Do not have incline of vat so steep that animals can not climb it easily.

Have suitable dripping platforms and drying pens, and do not load animals in car until they have become dry.

Handle animals as carefully as possible, and the causes of shrinkage in dipping will be avoided to a great extent.

Animals that are in good condition will stand the dipping very well, even when the weather is quite cold.

#### SUBSEQUENT CLASSIFICATION OF DIPPED ANIMALS.

25. Animals dipped or sprayed once in Beaumont crude petroleum, or similar oil, or an emulsion thereof, and those dipped twice in any other approved dip will be regarded as free unless live mites are found on them, or unless they are exposed after three days subsequent to the last dipping, on an infectious range, pasture, thoroughfare, or trail; if, however, such dipped animals are at any time placed with affected animals, they must be regarded as again infected, or if closely confined in infectious pens, sheds, cars, etc., they must be regarded as again exposed.

#### DIVERTING SHIPMENTS OF CLEAN ANIMALS.

26. In cases where a shipper wishes to divert part of a shipment of clean cattle or sheep to a point other than that mentioned on either the billing or the Bureau certificate of inspection covering the same, it may be done without a reinspection if the stock are not unloaded, provided the Bureau employee or the railway agent at the point of diversion shall note over his own signature on the billing accompanying the part so diverted the number of the Bureau certificate, the date of same, and the name of the inspector by whom it was issued. A further notation should be made on the original certificate indicating the numbers and initials of the cars, and the number of head of stock so diverted as well as their destination. The notations above required to be made on the new billing will stand in lieu of the original certificate, which should accompany the remainder of the shipment to the destination originally mentioned. (See paragraph 35 under "Directions for reporting the inspection and dipping of sheep and cattle.")



## DIRECTIONS FOR REPORTING THE INSPECTION AND DIPPING OF SHEEP AND CATTLE.

In order that all sheep and cattle handled at points where inspection is maintained by this Bureau, as well as all those inspected in the field, may be examined for scabies and that the work connected therewith may be uniformly and accurately reported, the following instructions will be observed:

### TO ALL EMPLOYEES.

#### I. D. FORMS TO USE.

27. I. D. Forms 24A and 24B should be used in reporting all inspections and dippings of sheep and cattle for scabies. "Inspections" should be reported on I. D. Form 24B and "dippings" on I. D. Form 24A. Cattle sprayed with oil or an oil emulsion should be reported on I. D. Form 24A, with such changes in the form as will indicate that they were sprayed instead of dipped.

#### REINSPECTIONS.

28. No distinction should be made between "inspections" and "reinspections." They should all be reported as "inspections," but reference should be made to former inspections when possible.

#### SEPARATE REPORTS FOR EACH LOT.

29. Each lot of sheep or cattle dipped for scabies should be promptly and carefully reported on I. D. Form 24A by the employee supervising the same. Separate slips must be used for each kind of animals (sheep or cattle) and for each condition (infected, exposed, or free). If the animals dipped are infected and have been previously inspected by a Bureau employee during the calendar year then current, the report of dipping should refer briefly to the report of previous inspection; thus, "Smith, 6/28/04." The report of a second dipping should always refer to the date of the first dipping. When one employee makes the inspection and another supervises the dipping, the former should report the "inspections" and the latter the "dipping."



## NOTICE OF SHIPMENT UNDER CERTIFICATE.

30. Notice of shipments of cattle or sheep, under Bureau certificate, in placarded cars, should be promptly forwarded on I. D. Form 24B to the proper Bureau representatives at unloading points en route and at destination, giving full information as required by that form. Such notices should be filed in the office of the inspector to whom they are addressed.

## INFECTED ANIMALS DIPPED ONCE.

31. When infected animals are shipped after one dipping under the supervision of an employee of the Bureau, they must be handled as "infected" and so reported by employees at unloading stations en route and at destination.

## SEPARATE REPORTS FOR EACH CERTIFICATE.

32. When one owner has separate lots of animals inspected or dipped, and a certificate (I. D. Form 24 or 48) is issued for each lot, a separate report should be made of the animals covered by each certificate.

## EMPLOYEES WORKING TOGETHER.

33. When two or more employees work together in the inspection or dipping of the same animals, but one set of reports should be made, and these should be signed by each employee.

## CARE IN MAKING REPORTS.

34. All reports (I. D. Forms 24A and 24B) must be executed with care, but special attention should be given to the following entries:

(a) *Kind of animals*.—The kind of animals inspected or dipped should be designated by the word "sheep" or "cattle," as the case may require, crossing out the word not required.

(b) *Location of animals*.—The town or station and State where the inspection is made or the dipping supervised must be given. If not at or near a station, then the county, State, and locality must be designated. Where animals are infected, the owner's name and correct address must always be given, and also the origin of the animals, or the place where they became infected; this

information, if possible, should include the county as well as the town and State.

(c) *Date of report.*—The date of the report should be the same as the date on which the inspection is made or dipping supervised, and, if the inspection and dipping of one lot of animals should require more than one day, all the dates should be given.

(d) *Number and condition of animals.*—The number of animals inspected or dipped should be entered on the line corresponding with the condition (infected, exposed, or free) of the animals at the time the inspection is made or dipping supervised.

(e) *Kind of dip used.*—When reporting a dipping, the kind of dip used must be stated under one of the following mentioned classes: Nicotine and sulphur abbreviated thus, N. & S.; Tobacco extract and sulphur abbreviated thus, Tob. & S.; Lime and sulphur abbreviated thus, L. & S.; Cresol abbreviated thus, Cres.; Coal-tar creosote abbreviated thus, C. T. C.; Beaumont oil abbreviated thus, B. O.; Beaumont oil emulsion abbreviated thus, B. O. Em.; any other oil or an emulsion thereof should be named in full.

In classifying the various preparations that may be used, it will be necessary to read carefully the statement printed on the label of each package in order that the dip may be properly classified as indicated above. Trade names of dips must not appear on reports.

(f) *Number of dipping.*—Each report of dipping should be made to show which dipping it covers by crossing out the words "1st dipping" or "2d dipping," or by crossing out both "1st" and "2d" and inserting "3d" when necessary.

(g) *When animals change owners.*—Whenever a band or herd of infested animals changes owners between inspection and last dipping, mention of the former owner should always be made on later reports.

#### UNLOADING AND DIVERTING EN ROUTE.

35. More than one certificate covering the same animals must not be outstanding at the same time. When a certified shipment is unloaded en route and is divided and

reconsigned to different points, or when for any cause the point of destination is changed after a shipment has gone forward, new certificates should be issued only after a careful reinspection of the animals. In all such cases the employee who issues new certificates should take up the old ones and attach them to the report covering his own inspection of the animals. (See Paragraph 26 under "General directions.")

#### CERTIFICATES AND STUBS.

36. When a certificate is issued a stub should be properly filled out and signed at the same time, and when all the certificates in a book have been issued the book of stubs should be forwarded to the inspector or officer in charge, who will retain them in his office. Sheep should be certified on I. D. Form 24, and cattle on I. D. Form 48, and when shipment is made the certificate must be attached to the waybill.

#### DETECTION OF DISEASE EN ROUTE.

37. When a shipment of cattle or sheep is found, whether en route or at destination, to be affected with scabies the inspector at the point where the disease is detected should immediately forward notices of the condition of the animals to the proper State official and to the inspector in charge of the district in which the shipment originated. Such notices should be prepared on I. D. Form 24B and mailed as early as possible, in order to facilitate the prompt disinfection of the yards and pens through which the animals were handled. In such cases the report, I. D. Form 24B, sent to the Washington office, should bear a notation indicating that notices were given as above directed. Care should be taken by those having the matter in charge to see that the above instructions are always complied with.

#### YARDS AND PENS.

38. The cleaning and disinfection of yards and pens should be reported promptly on a separate I. D. Form 24B.

#### TO INSPECTORS IN CHARGE AT STATIONS.

All sheep and cattle received at stations each day must be inspected for scabies and reported in the manner described in the next three paragraphs.



## INFECTED ANIMALS RECEIVED AT STATIONS.

39. One report should be made on I. D. Form 24B to cover each shipment of INFECTED sheep or cattle received. In cases where such infected animals have been previously inspected by a Bureau employee during the calendar year then current, that fact should be noted on the report, giving the name of the employee and the number of the certificate issued by him; thus, "Smith 58979," or, if no certificate was issued thus, "Smith, 6/15/04."

## EXPOSED ANIMALS RECEIVED AT STATIONS.

40. One report should be made each day on I. D. Form 24B to cover the whole number of EXPOSED sheep received that day and another report (I. D. Form 24B) to cover the whole number of EXPOSED cattle received that day. The names of the various buyers, shippers, etc., should be omitted.

## FREE ANIMALS RECEIVED AT STATIONS.

41. One report should be made each day on I. D. Form 24B to cover the whole number of FREE sheep received that day and another report (I. D. Form 24B) to cover the whole number of FREE cattle received that day. The names of the various buyers, shippers, etc., should be omitted.

## CARE IN MAKING FOOTINGS.

42. Great care should be exercised in making the footings on the 24A and 24B reports of each month in order that the *correct* totals may be obtained for making the monthly report 24C, and this report should be mailed to Washington as soon as possible after the close of each month.

## ANIMALS REMOVED FROM A STATION.

43. Each lot of sheep or cattle shipped or driven from a station without dipping, for which a certificate is issued, should be reported on I. D. Form 24B. This report is necessary in order that all certificates issued may be reported and recorded; if, however, the animals are dipped before they go out, this report should not be made, as the dipping report will show the certificate number.

## INSPECTIONS AWAY FROM STATIONS.

44. When an inspector or officer in charge of a regular station, or an employee under his supervision, makes an

inspection or supervises a dipping at a point outside of his regular station, such work should be reported in the same manner as required of employees in the field.

#### TO EMPLOYEES IN THE FIELD.

##### REPORTS OF FIELD INSPECTIONS.

45. One report should be made on I. D. Form 24B to cover each lot of sheep or cattle inspected for scabies. If animals are found infected and are known to have been inspected previously and reported as "infected" by any Bureau employee during the calender year then current, that fact should be noted on the report, giving the name of the employee and, when possible, the date of the previous inspection; thus, "Smith, 6/15/04."

##### REPORTS OF FIELD DIPPINGS.

46. When inspections are made or dippings supervised by an employee of a State or Territory, acting in a measure under the supervision of an employee of this Bureau, the report of the latter should include the name and title of the former; thus, "Inspection made by," or "Dipping supervised by John Smith, State Inspector," or "Deputy State Inspector."

##### HOLDING REPORTS.

47. When animals are inspected or dipped on a certain day and the employee knows or has good reason to believe that the owner will ship them within three days and that a certificate will be required for such animals; he may hold (not to exceed three days) the report of inspection or dipping until the certificate is issued, in order that the number of the certificate may be shown on the report; but if the animals are actually inspected again when the certificate is issued, another inspection report should be made.

##### DUPLICATE REPORTS.

48. All reports (I. D. Forms 24A and 24B) rendered by employees in the field must be made in duplicate, using a copying pencil in making the original and carbon paper to produce the duplicate. Both copies should be mailed immediately to the inspector or officer in charge, who will compare them, making any necessary corrections in red ink, file the duplicate in his office, and forward the original to the office in Washington.